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US EPA RECORDS CENTER REGION 5



577929

EXISTING CONDITIONS EVALUATION

OF

**PANELYTE SITE
2403 SOUTH BURDICK STREET
CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN**

FOR

CITY OF KALAMAZOO

April 2016
Project No. 825830



TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 EXISTING CONDITIONS	1
3.0 DATA GAPS	3
4.0 POTENTIAL DUE CARE OBLIGATIONS	3
5.0 SITE DEVELOPMENT CONSIDERATIONS	4
6.0 POTENTIAL REMEDIATION AND SITE PREPARATION COSTS	4

LIST OF FIGURES

Figure 1	Site Plan
Figure 2	Subsurface Development Impediments
Figure 3	Panelyte Dump Thickness Isopach
Figure 4	Peat Thickness Isopach
Figure 5	Environmental Conditions

APPENDICES

Appendix A	Site Photographs
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1.0 INTRODUCTION

Fleis & VandenBrink Engineering, Inc. (F&V) was retained by the City of Kalamazoo to conduct an Existing Conditions Evaluation of the former Panelyte Site located 2403 South Burdick Street in the City of Kalamazoo (Site).

The Site was used for papermaking activities from the late 1890s until 1969 when it was sold to Reliance Universal/Reliance Panelyte which manufactured Panelyte, a laminated surfacing material. The Site was used for Panelyte manufacturing until the mid -1980s when all operations ceased. PCB-containing electrical transformers, fuel oil, varnish and solvents had been historically used on the Site. Chemical spills and releases related to the former industrial operations were reported on the site. The State of Michigan demolished the Site buildings and conducted limited remedial actions between 1986 and 2006..

Numerous environmental investigations have been conducted at the Site, including:

- 1997 Technical Memorandum 7, Allied Paper, Inc., OU, BBL
- 2002 Brownfield Restoration Project Activities, Malcolm Pirnie
- 2004 Limited Remedial Investigation, Landmark
- 2006 Operable Unit Remedial Investigation Report, Camp Dresser McKee
- 2010 Baseline Environmental Assessment, FTCH

Available data from these investigations were reviewed during this evaluation.

2.0 EXISTING CONDITIONS

The Site can be divided into three primary sections, Former Building Area, Panelyte Dump, and Southern Area. Recent Site photographs are provided in Appendix A.

Former Building Area

This portion of the Site was the former location of the Site buildings and improvements and is the area that has the most potential to be redeveloped in the future. The majority of the Site buildings and improvements have been demolished. The concrete slab of the main building was contaminated with PCBs and was removed and disposed offsite. A few remnant improvements such as: underground vaults, rail lines, and fencing remain. Portions of the concrete building foundations were crushed onsite during demolition activities and used to backfill the building excavations with the additional crushed materials spread over portions of the Site. Portions of the visible crushed concrete materials on the Site surface are very coarse (3 – 4-inches). Not all building foundations and concrete slabs were removed, the main building foundation was reported to be very massive and was removed to approximately 5-feet below grade. It was reported that several of the smaller building concrete slabs were cracked and left in place. It is likely that the building foundations of these building remain also. The locations of the buried building foundations and slabs are shown on Figure 2.

Portions of this area of the Site appear to have been historically low-lying and were filled to allow development, likely during the paper-making operations at the Site. Based on the boring logs from the different environmental investigations the backfill included waste materials such as coal ash/slag, brick, rubble, etc.. The complete nature and extent of the fill materials has not been documented. Over 10-feet of fill materials was reported in some of the boring logs. The fill materials blend with the Panelyte Dump materials to the south. The estimated location of the fill materials are shown on Figure 2.

An "Unidentified Object" was reported as being located to the southeast of the former main building (shown on Figure 2). This object was reported to be a pipe or possibly an underground storage tank. It is not known if any further investigations were conducted to determine what the object was and if it is still present at the Site.

Soils in the Former Building Area are documented to be contaminated from the former industrial operations and historic landfilling. Metals and semi-volatile organic compounds (SVOCs) are present above MDEQ Part 201 Generic Residential Cleanup Criteria (GRCC) including Direct Contact (DCC), Groundwater Protection (GPC) and Groundwater-Surface Water Protection (GSIPC). Arsenic is documented to be present at concentrations exceeding MDEQ Part 201 Generic Non-Residential Cleanup Criteria (GNRCC) – Direct Contact Values. Polychlorinated biphenyls (PCBs) were documented to be present in soils beneath the primary building at concentrations exceeding the Toxic Substance Control Act (TSCA) threshold. The known PCB contaminated soils were over-excavated and disposed offsite during State-funded Site remediation activities. Complete verification of soil remediation sampling and analysis does not appear to have been conducted to verify that all PCB contaminated soils were removed. The potential exists that PCB contaminated soils may be present in the vicinity of the former primary building.

Groundwater in the Former Building Area is also documented to be contaminated. Metals, SVOCs and volatile organic compounds (VOCs) are documented to be present above MDEQ Part 201 GRCC and GNRCC, including Drinking Water (DWC), Groundwater-Surface Water Interface (GSI) and Direct Contact (DC).

Panelyte Dump

The Panelyte Dump is located south of the Former Building Area and encompasses approximately 4-acres of the central portion of the Site. It is likely that this area of the Site was historically low-lying and was likely used during the paper-making activities and the Panelyte operations as an industrial dump. Visual observations of surficial materials include 55-gallon drums, other chemical containers, Panelyte material, paper rolls, concrete, coal slag and industrial trash. This area also appears to have been used for illegal dumping of household trash and other items, such as two vehicles, before the Site was fenced.

Numerous borings were installed in the Panelyte Dump Area during the 2004 Landmark investigation to assess the extent of waste materials and the conditions of soil and groundwater. The Landmark investigation data indicates that up to 16-feet of waste material/fill is present in the Panelyte Dump. The estimated extent and thickness of the Panelyte Dump is shown on Figure 3. The Panelyte Marsh is present at the southern end of the Panelyte Dump area. It is likely that waste materials are present beneath all, or portions of the Panelyte Marsh.

The boring logs for Site investigations also indicate that a peat/marl unit underlies portions of the waste and fill materials at the Site. The peat/marl unit likely represents the historical surface of the low-lying area before filling and dumping activities were conducted. The estimated extent and thickness of the peat/marl unit is shown on Figure 4.

Soils in the Panelyte Dump are documented to be contaminated with Metals, SVOCs and VOCs at concentrations exceeding MDEQ Part 201 GRCC DWPC, GSIPC, and DCC. Carbon tetrachloride was detected in one soil sample at a concentration exceeding MDEQ Part 201 GRCC - Soil Volatilization to Indoor Air Criteria.

Groundwater beneath the Panelyte Dump is impacted primarily by tetrachloroethylene (PCE) at concentrations exceeding MDEQ Part 201 GRCC and GNRCC DWC. The source of the PCE is not known, but it is likely from the Panelyte Dump.

Southern Area

Waste materials from the adjacent Allied Paper Site – Western Disposal Area are located on the southern portion of the Panelyte Property – shown as the “OU-1 Encroachment Area” on Figure 2. The general dividing line between the Western Disposal Area wastes and the Panelyte Dump wastes is the Panelyte Marsh. It is likely that Western Disposal Area and Panelyte Dump Wastes are co-mingled beneath the Panelyte Marsh.

Soils in the Southern Area are documented to be contaminated with Metals at concentrations exceeding MDEQ Part 201 GRCC DWPC, GSIPC, and DCC. PCBs were detected in one soil sample at a concentration exceeding MDEQ Part 201 GRCC - DCC.

Groundwater beneath the Southern Area is impacted primarily by PCE and metals at concentrations exceeding MDEQ Part 201 GRCC and GNRCC DWC.

3.0 DATA GAPS

There have been numerous environmental investigations conducted at the Site, the most recent in 2010. Current data will be needed to assess Due Care Obligations at the time of Site redevelopment. Based on a limited review of the existing data and assumptions of potential future use scenarios, our estimation of Data Gaps include:

- Evaluation of PCBs in soils in the vicinity of the former primary building.
- Investigation of the Unknown Object
- Further environmental characterization of fill material in areas of potential redevelopment.
- Geotechnical assessment of coarse concrete fill material.
- Geotechnical assessment of historic fill materials.
- Determine if buried drums or other chemical containers that are ongoing sources of contamination exist in the Panelyte Dump.

4.0 POTENTIAL DUE CARE OBLIGATIONS

If the City assumes ownership of the Site they will have Due Care Obligations under Michigan regulations as well as Continuing Obligations under Federal regulations. Due Care and Continuing Obligations are very similar.

Future Site use plans are not known, however, in general, the City and future Site property owners/users have responsibilities to develop and use the Site in a manner that: prevents future releases of hazardous substances, does not expose Site occupants and users to harmful levels of contamination, and does not exacerbate existing environmental conditions.

Section 20107a(1) (commonly referred to as Section 7a) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, provides that a person who owns or operates property and also has knowledge that the property is a facility (i.e., a site of contamination) must do all of the following with respect to hazardous substances at the facility:

- a. Undertake measures as necessary to prevent exacerbation of existing contamination.
- b. Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the facility in a manner that protects public health and safety.
- c. Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that foreseeably could result from those acts or omissions.
- d. Provide reasonable cooperation, assistance, and access to persons authorized to conduct response activities.
- e. Comply with land use or resource use restrictions.
- f. Not impede the effectiveness or integrity of any land use or resource use restrictions and response activities.

Potential Due Care Response Actions may be necessary to prevent exacerbation of, or exposure to, Site contaminants, during future Site development and use, including:

- Soil and groundwater quality investigations
- Contaminated material excavation and offsite disposal
- UST closure

- Abandoned drum/container excavation and disposal
- Treatment and/or disposal of groundwater during construction dewatering
- Consolidation of contaminated materials
- Installation of direct contact exposure barriers

5.0 SITE DEVELOPMENT CONSIDERATIONS

How the Site will be used in the future is not known, but the following assumptions can be made:

- No Single Family Residential Use
- City Water – Drinking Water Source
- Some Recreational Use – Non-Motorized Trailway
- The Southern Area will be incorporated into the OU1 remedy.

The major items that will need to be considered during future Site development include:

Coarse Crushed Concrete Fill – The concrete appears to have been crushed to a 3 or 4-inch minus specification. If the crushed material cannot be properly compacted to support the planned development or if voids exist in the material it may need to be excavated, screened, the coarser material crushed to an engineered specification, and placed/compacted back into the excavations.

Historic Fill Material – It is likely that there are areas of historic filling that contain materials that are not suitable for future development, including coal ash/cinders, demolition debris/rubble and other waste materials. These materials would likely have to be excavated and disposed offsite.

Contaminated Soils – soils are contaminated at concentrations exceeding Direct Contact Criteria. The most likely soil management strategy would be a Due Care Barrier above the existing Site soils. There is typically a geotextile fabric or other visible barrier placed above the contaminated soils with a Due Care Barrier of managed landscape cover, uncontaminated soils or an engineered barrier (paved surface). The Due Care Barrier has to be managed and maintained.

Current soil and groundwater information has not identified any volatilization to indoor air concerns in the Former Building Area. A Vapor Intrusion Screening should be conducted prior to Site development to evaluate this potential exposure pathway.

Panelyte Dump – It is likely that drums, chemical containers and other potential ongoing sources of contamination exist within the dump. The nature of the waste materials and potential exposure scenarios make this area of the Site difficult to develop. The Panelyte Dump would need to be remediated to allow for any future site development. At a minimum, the area would need to be fenced to restrict access and minimize the potential for exposure.

Buried Building Foundations and Slabs - There are numerous buried building foundations and cracked concrete slabs that are reported to be buried at the Site. The presence of these subsurface impediments may limit the types of structures that can be developed on the Site in the future.

Storm Water Management – contaminated soil and groundwater exist on the Site. Storm water disposal/management systems in future developments on the Site will need to be designed, installed and operated to minimize the potential of exacerbating existing environmental conditions.

6.0 POTENTIAL REMEDIATION AND SITE PREPARATION COSTS

Preliminary budget costs for potential remediation and site preparation activities were requested to assist in the planning process. The following costs are estimates based on limited data and many assumptions.

Soil and Groundwater Investigations – Budget \$25,000 to \$40,000

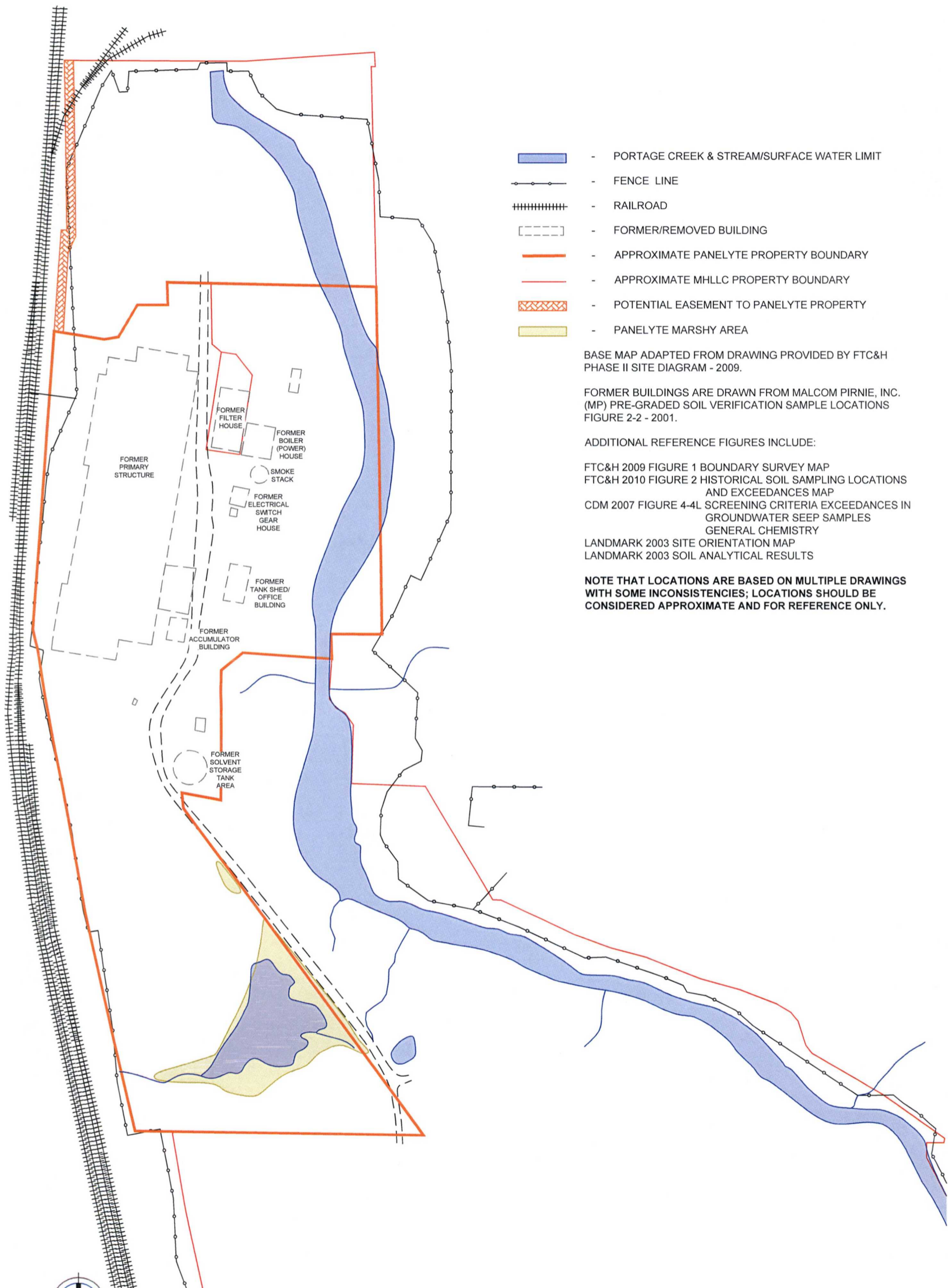
Geotechnical Investigations – Budget \$25,000 to \$30,000

Coarse Crushed Concrete Fill – The volume of crushed concrete fill is not known. If we estimate that the building excavation was approximately 200-feet by 750-feet and an average depth of crushed concrete of 5-feet, the volume of crushed concrete fill would be approximately 30,000 cubic yards. Using a budget cost of \$10/cubic yard to excavate, screen, crush, place and compact the material, the cost estimate would be approximately \$300,000. A potential cost savings measure could be realized if the coarse crushed concrete material could be excavated and used as road building and remedial operations pad material during the OU1 Remedy construction.

Historic Fill Material – the volume of unsuitable historic fill material is not known. It is estimated that there may be up to 3-acres of area that contains historic fill material. If we estimate that 10% of the historic fill area contains an average depth of 10-feet of unsuitable materials that will need to be excavated and disposed offsite, we calculate approximately 5,000 cubic yards of unsuitable material. If we further assume that the material is a non-hazardous waste and a budget cost of \$45/cubic yard to excavate, load, transport and dispose the soils in a Type II Landfill, we estimate a budget cost of \$225,000. A significant cost savings could be realized if the unsuitable fill materials could be incorporated into the OU1 Remedy.

Due Care Barrier – Due Care Barriers can consist of buildings; paved parking lots, driveways, sidewalks and trails as well as a managed landscaped cover. Uncontaminated soil will need to be imported to provide a suitable sub-base for paved surfaces as well as providing a suitable thickness of due care barrier to underlying contaminated soils in managed landscaped areas. If we assume 5 acres of developable land with a thickness of 1-foot of uncontaminated soil cover we calculate an approximate volume of 8,000 cubic yards. At \$12/cubic yard to import, place and compact the material, we calculate a budget cost of \$96,000. A potential cost savings could be realized by retaining all, or a portion of, the uncontaminated sand that is anticipated to be generated during the removal of the Alcott Street Dam, and using that material at the Site for Due Care Barriers and clean fill material.

Panelyte Dump Remediation – In order to remove ongoing sources of contamination to soil, groundwater and surface water at the Site and remove Due Care liabilities, the Panelyte Dump may need to be remediated. The dump area is approximately 4 acres in size. If we assume an average waste thickness of 8-feet and that the wastes are non-hazardous, that would equate to approximately 40,000-cubic yards of material that would need to be excavated and disposed offsite in a Type II Landfill. At a budget cost of \$45/cubic yard, we estimate a cost of \$1,800,000. A potential cost savings could be realized by removing the wastes in the Panelyte Dump and incorporating them in the OU1 Remedy.



- PORTAGE CREEK & STREAM/SURFACE WATER LIMIT
- FENCE LINE
- RAILROAD
- FORMER/REMOVED BUILDING
- APPROXIMATE PANELYTE PROPERTY BOUNDARY
- APPROXIMATE MHLCC PROPERTY BOUNDARY
- POTENTIAL EASEMENT TO PANELYTE PROPERTY
- PANELYTE MARSHY AREA

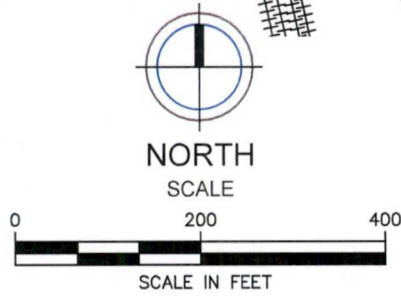
BASE MAP ADAPTED FROM DRAWING PROVIDED BY FTC&H
PHASE II SITE DIAGRAM - 2009.

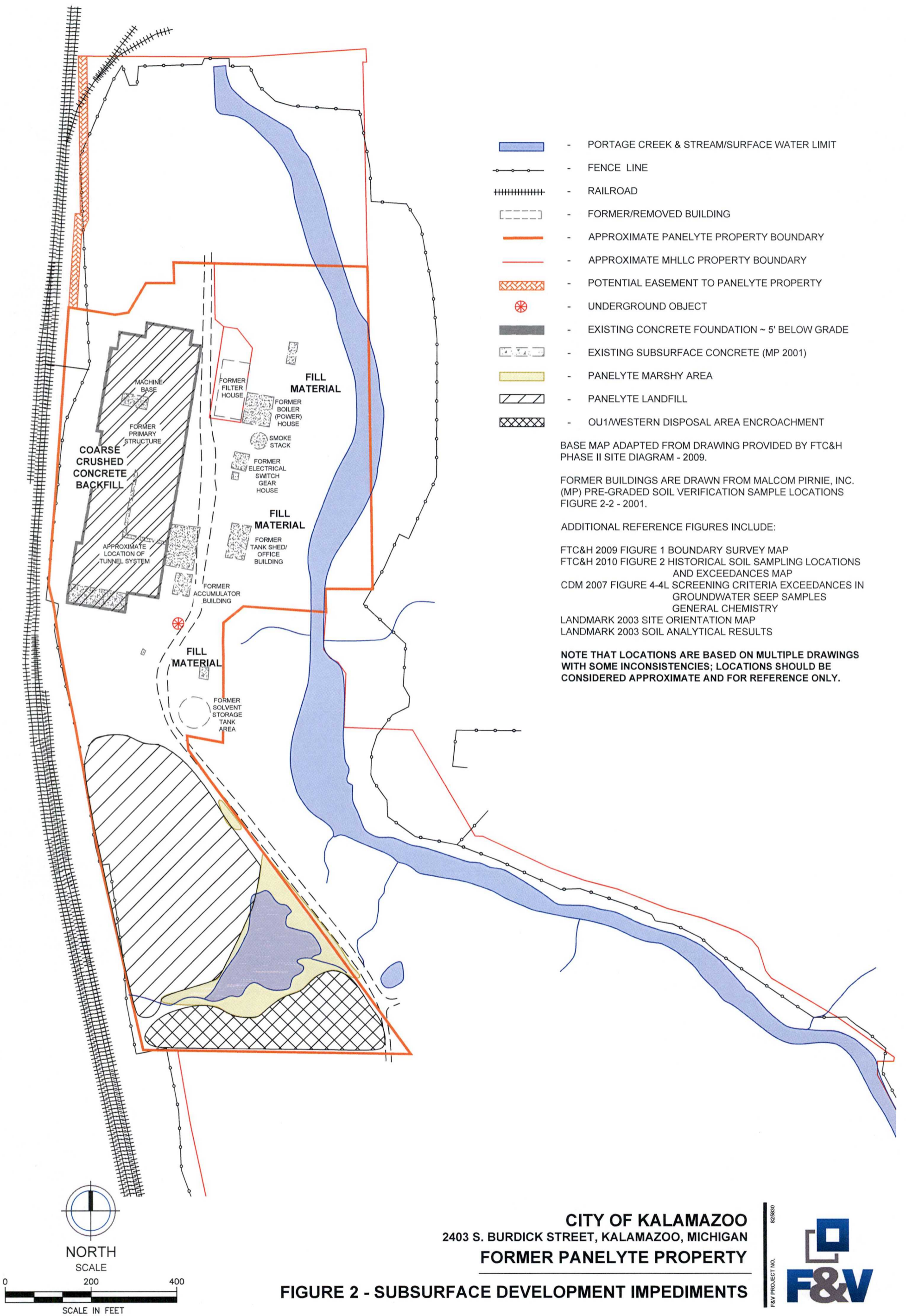
FORMER BUILDINGS ARE DRAWN FROM MALCOM PIRNIE, INC.
(MP) PRE-GRADED SOIL VERIFICATION SAMPLE LOCATIONS
FIGURE 2-2 - 2001.

ADDITIONAL REFERENCE FIGURES INCLUDE:







- FTC&H 2009 FIGURE 1 BOUNDARY SURVEY MAP
- FTC&H 2010 FIGURE 2 HISTORICAL SOIL SAMPLING LOCATIONS
AND EXCEEDANCES MAP
- CDM 2007 FIGURE 4-4L SCREENING CRITERIA EXCEEDANCES IN
GROUNDWATER SEEP SAMPLES
GENERAL CHEMISTRY
- LANDMARK 2003 SITE ORIENTATION MAP
- LANDMARK 2003 SOIL ANALYTICAL RESULTS

**NOTE THAT LOCATIONS ARE BASED ON MULTIPLE DRAWINGS
WITH SOME INCONSISTENCIES; LOCATIONS SHOULD BE
CONSIDERED APPROXIMATE AND FOR REFERENCE ONLY.**







-  - PORTAGE CREEK & STREAM/SURFACE WATER LIMIT
-  - FENCE LINE
-  - RAILROAD
-  - FORMER/REMOVED BUILDING
-  - APPROXIMATE PANELYTE PROPERTY BOUNDARY
-  - FILL WASTE ISOPACH - ESTIMATED THICKNESS FROM GROUND SURFACE

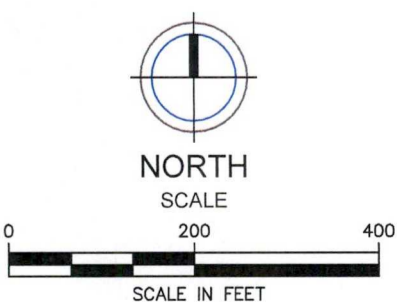
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CDM 2007 FIGURE 4-4L SCREENING CRITERIA EXCEEDANCES IN
GROUNDWATER SEEP SAMPLES
GENERAL CHEMISTRY
LANDMARK 2003 SITE ORIENTATION MAP
LANDMARK 2003 SOIL ANALYTICAL RESULTS

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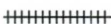



CITY OF KALAMAZOO
2403 S. BURDICK STREET, KALAMAZOO, MICHIGAN
FORMER PANELYTE PROPERTY

FIGURE 3: PANELYTE DUMP THICKNESS ISOPACH

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-  - PORTAGE CREEK & STREAM/SURFACE WATER LIMIT
-  - FENCE LINE
-  - RAILROAD
-  - FORMER/REMOVED BUILDING
-  - APPROXIMATE PANELYTE PROPERTY BOUNDARY
-  - PEAT / MARL ISOPACH - ESTIMATED THICKNESS BELOW WASTE MATERIALS OR FILL

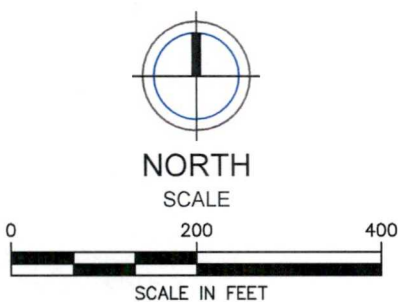
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CITY OF KALAMAZOO
2403 S. BURDICK STREET, KALAMAZOO, MICHIGAN
FORMER PANELYTE PROPERTY
FIGURE 4: PEAT THICKNESS ISOPACH

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